NOTES ON SOME BIRDS OF SANTA CLARA COUNTY, CALIFORNIA.

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(*Read November 17, 1899.*)

This paper has been prepared in response to several requests for such notes as I might have on the land birds of Santa Clara county. It is based upon more or less casual observations extending over a period of fourteen years, and makes no pretense to completeness in any way.

Santa Clara county is slightly greater in extent than Rhode Island. Roughly, it may be described as a great valley lying between two mountain ranges. The eastern range rises, in Mount Hamilton, to a height of nearly 4450 feet. The western range is considerably lower. The floor of the valley is made up of the southern marshes of San Francisco bay, parklike expanses of open oak groves, orchards, vineyards and great grain fields. The western mountains, where not already under cultivation, are clothed in chaparral throughout their lower levels, while a fringe of redwoods stands in outline against the sky.

It is at two points in this western range—Los Gatos and Palo Alto—that nearly all my observations have been made. Doubtless many additional species occur in the valley and in the eastern mountains, and it is my hope that other observers will soon complete the list.

Lophortyx californicus. California Quail.

Quail are resident in all parts of the county. During March and early April their calls may be heard almost incessantly, for this is the season of courtship, and even the most bashful of the *debutantes* does not hesitate to reply to the amorous notes of her lovers. At such times the males seem almost devoid of fear, and, if a female be caged, will strut boldly up to her prison door, even though an observer be openly stationed a few feet away. Rival suitors often engage in fierce conflicts, for what is to the female the tenderest of love calls is to another male the sharpest of challenges.

A few coveys often remain as such through the year, but the middle of April finds most of the quail roaming in pairs. Even at this

date some of the more enterprising have selected their homes, and, in a few instances, begun to lay (April 19, 1888). The majority, however, wait until nearly a month later.

After the nest has been finished and laying begun, one egg is deposited each morning, with an occasional intermission, until the set is complete. The number of eggs laid varies greatly. I have found incubated sets of from ten to nineteen eggs, and reports of nests containing twenty-five have reached me from reliable farmers. Two pairs kept in captivity during the summer of 1888 laid sixty-six eggs (twenty-five and forty-one).

Single eggs are often found on the ground in places where least expected. This, I believe, is due to indecision on the part of the female, for caged birds deposited several eggs at random before choosing a definite nest. It is not unlikely that nests sometimes receive eggs from more than one female. This certainly is true of caged quail. I have found two nests of *Pipilo maculatus oregonus* which contained, besides the usual four eggs of the towhee, one and three quail's eggs respectively.

Sometimes both birds are flushed from the nest, but the duties of incubation usually fall to the lot of the female. A hint of the tragedies that sometimes occur at this time is given in the following items from my notebook:

On May 18, 1898, while clearing away some vines, a quail's nest was discovered in the corner of a chicken-yard. When first shown me this nest contained six eggs and was partially hidden by some dead vines which had been placed over it. May 26: Female sitting on nine eggs. May 27: Female incubating. May 28: The eggs were cold and quail feathers were scattered all about. Evidently the female had been caught and eaten during the night. May 29: The male has taken the female's place on the nest. I fear he will share her fate. May 30: The male's feathers are mingled with those of his mate.

Often, while the female is incubating or has gone on the nest to lay, her mate mounts upon some post or tree nearby and gives vent to his feelings in a metallic call that may be represented by the monosyllable "kayrk." This note, which is repeated drawlingly at frequent intervals, is heard only at this season.

The period of incubation is, to judge from caged birds, twenty-one days. The young often leave the nest before their down has dried, and are from the first gifted with great ability to hide. It is

probable that two broods sometimes are reared in a season, for I have found nests containing fresh eggs as late as June 26 (1889).

The very young birds feed, to a great extent, on the seeds of a small grass, which ripen in May and June. Later in the summer various seeds and grains are eaten, and during the autumn and early winter grapes, and then the berries of the California holly form a large part of their diet. In the early spring, after the seeds have sprouted, the quail live almost entirely on the tender leaves of the young weeds which cover the ground. They are very fond of the inner portions of various small bulbs turned up by the plow. A pair made daily visits to a cherry tree during the season of that fruit.

Many of the oaks near Los Gatos contain nests made of twigs by a species of wood-rat. The quail often resort to these when hunted and it is very difficult to get one to leave when once it is thus hidden. On the 16th of May, 1886, I flushed a pair of quail from such a nest, built about eight feet from the ground, and upon climbing to it found it to contain five eggs. Two days later this nest was empty.

Columba fasciata. Band-tailed Pigeon.

This pigeon is a rather common migrant and winter resident, occurring from October 6 (1889) to May 9 (1890). It feeds on the red fruit of the Christmas berry, acorns, oak buds and grain, but rarely descends to the ground. The largest flock, containing between seven hundred and a thousand birds, was observed near Los Gatos in November, 1887. Usually the flocks are composed of from two to three dozen individuals. At Palo Alto they may be found throughout the winter and well on into May.

Zenaidura macroura. Mourning Dove.

A common spring and summer resident, arriving about the end of March. I have found fresh eggs from the first week in May until the last in June. The doves eat large quantities of the shiny black seeds of a sort of "cockscomb" which grows very abundantly in parts of the valley.

Pseudogryphus californianus. California Vulture.

Two vultures seen near Los Gatos are my only records of this species in Santa Clara county.

Cathartes aura. Turkey Buzzard.

Buzzards may be seen at any season of the year, sometimes in

large companies. They formerly nested near Los Gatos, and still do so among the redwoods near Boulder creek, Santa Cruz county.

Elanus leucurus. White-tailed Kite.

I have never seen this beautiful hawk near Los Gatos. In the vicinity of San José and Palo Alto, however, it is a common resident, and its nests are not infrequently found. It hunts in pairs throughout the year.

Accipiter velox. Sharp-shinned Hawk.

Sharp-shinned hawks are very abundant in winter, both at Los Gatos and Palo Alto, where they wage ceaseless war on the Juncos and Zonotrichias. One was shot while trying to get at some quail in a trap. I have never observed them in summer.

Accipiter cooperi. Cooper's Hawk.

I have seen but two specimens of this hawk, both at Los Gatos in autumn.

Buteo borealis calurus. Western Red-tail.

This fine hawk is a very common resident in all parts of the county. Measurements of a young bird, which was taken from a nest near Palo Alto, April 30, 1893, and fed upon raw beef, show great rapidity of growth:

May	1,	length	5.86	inches,	extent	7.00	inches,	weight	145	grammes.
"	2,	"	5.90	"	"	7.05	"	"	170	"
"	4,	"	6.50	"	"	7.50	"	"	190	"
"	6,	"	6.75	"	"	8.00	"	"	219	"
"	8,	"	7.25	"	"	8.50	"	"	250	"

This bird was covered with soft down, pure white, except on the top of the head, the scapular and interscapular areas, the dorsal surfaces of the wings, and two bands running forward from each eye to the cere, where the down was slightly tinged with slaty gray. Pinfeathers were just beginning to appear along the sides of the body.

Buteo swainsoni. Swainson's Hawk.

I have never seen this species at Los Gatos. It is not common at Palo Alto, but specimens are occasionally killed.

Aquila chrysætos. Golden Eagle.

In the eastern parts of the valley and in the mountains near Mount Hamilton, this eagle breeds abundantly, but it seems to avoid the western portions of the county, where I have seen it but once, at Los Gatos, in winter.

Falco sparvarius deserticola. Desert Sparrow Hawk.

This is the commonest of our hawks. It is resident in all parts of the valley, and breeds abundantly in the cavities of the white oaks in April and May.

Strix pratincola. Barn Owl.

Barn Owls are very common at Palo Alto and near San José, but are rarely seen at Los Gatos. A nest in a hollow oak near Palo Alto, visited May 13, 1894, contained one egg, three young owls and five gophers. The gophers were arranged in a row at one side of the cavity, their headless necks all directed away from its centre, where the egg and young owls lay.

Asio wilsonianus. Long-eared Owl.

I have seen this owl but once, on Black Mountain, February 18, 1893.

Asio accipitrinus. Short-eared Owl.

A single specimen was killed near Los Gatos in the fall of 1891.

Megascops asio bendirei. California Screech Owl.

This is a resident species, which breeds abundantly in all parts of the county, usually in May.

Bubo virginianus pacificus. Pacific Horned Owl.

This large owl may often be seen toward five or six o'clock in the afternoon of warm, clear days in April and May soaring in pairs or skimming over the fields in search of food. Near Palo Alto the species is quite common and nests in the large oaks which abound in that district. The nest examined May 14, 1892, contained two half-grown young. The following year this pair constructed a nest in a white oak about two hundred yards from that which contained their nest of 1892. This new nest was made of coarse twigs and was partially lined with moss. Its construction occupied the owls about two weeks. When deprived of the two eggs which they laid in this nest the birds returned to the nest of 1892 and laid two

there. The extreme rarity of this owl at Los Gatos is doubtless due to the absence of large trees.

Speotyto cunicularia hypogæa. Burrowing Owl.

This a common resident in many parts of the county. A pair have nested near the same spot on the campus of Leland Stanford Junior University three successive years. In winter one bird may always be seen near this nest burrow (of *Spermophilus*), but I have never seen two there at that season. In this burrow I have found at various times remnants of gophers, meadowlarks and toads.

Glaucidium gnoma californicum. California Pygmy Owl.

Twice, in May, 1898, a Pygmy Owl came at about six in the morning and dashed itself against the wire netting of my bird cage.

Geococcyx californianus. Road-runner.

Road-runners are not very common. I have seen them either at Los Gatos or Palo Alto in every month of the year except January, and have taken their eggs in May. A nest found in a white oak near Los Gatos, May 31, 1888, held four eggs, two of which contained large embryos. This nest was made of oak twigs, lined with weeds and grasses, fifteen feet from the ground. Diameter, twelve inches; height, eight inches; cavity diameter, seven inches; cavity depth, three inches. Another nest, in a cypress near Palo Alto, contained four highly incubated eggs, May 14, 1892.

Ceryle alcyon. Belted Kingfisher.

Kingfishers are sometimes found along the larger streams of the county, where they occasionally breed.

Dryobates pubescens gairdnerii. Gairdner's Woodpecker.

This active little bird is nowhere very common, although seemingly more abundant at Palo Alto than at Los Gatos. A nest in a maple near Los Gatos contained five fresh eggs, May 5, 1890.

Dryobates nuttallii. Nuttall's Woodpecker.

I have seen this bird only on Mount Hamilton, where it is said to breed.

Sphyrapicus varius nuchalis. Red-naped Sapsucker.

A bird which I shot at Palo Alto, February 17, 1893, is, while not typical of this form, much nearer *S. varius nuchalis* than *S. ruber.* It was busy in a small grove of pepper trees when found.

Sphyrapicus ruber. Red-breasted Sapsucker.

My first bird of this species was seen and shot at Los Gatos, November 6, 1892. It was an adult male in high plumage. I saw another at Palo Alto on December 8 of the same year. Two were killed by others during that winter. I have seen none since.

Melanerpes formicivorus bairai. California Woodpecker.

At Palo Alto this bird is the commonest of its tribe, and numbers of its storage trees may be seen. One large oak at Stanford University contained fully five thousand acorns. All that I examined had been placed, apex inward, in holes which had been drilled just through the bark to the hard wood. Usually but one acorn was placed in a hole, but in some instances several were wedged in together. The holes made by the birds are often very close together. This particular tree has been studded from within about six inches of the ground to about thirty-five feet above it. It has been suggested, perhaps not seriously, that the birds store the acorns in order to procure the larvæ which develop in them. October 2, 1892, I gathered twelve acorns from the lower part of the trunk. Three contained grubs, while the others were sound. November 13, I examined one hundred and fifty acorns. Of fifty taken between the ground and five feet above it, twenty-three were sound, twenty-three contained one grub each, one contained two grubs and three each sheltered three grubs. Of the second fifty, taken between five and ten feet from the ground, forty were sound and ten held grubs. Of the third fifty, taken between ten and fifteen feet from the ground, twenty-two contained grubs. Sixty more were examined on December 11; only twenty-five were sound. Mr. J. M. Stowell examined numbers of the stomachs of these birds at Stanford University and informed me that they contained nothing but bits of acorn.

The birds are very gregarious and noisy. They may be seen in flocks of from six to a dozen or more even during the breeding season.

Melanerpes torquatus. Lewis' Woodpecker.

I have never seen this woodpecker at Los Gatos. It is rare in the oak groves lower in the valley, and is not often seen at Palo Alto.

Colaptes cafer. Red-shafted Flicker.

Flickers are common at all seasons of the year, but are much more abundant in winter than in summer, there seeming to be a considerable immigration of northern birds at this season without a corresponding exodus. With these northern (?) individuals of *C. cafer* come numerous birds showing more or less *auratus* blood. Some of these are almost true *cafer*, others almost typical *auratus*. One, now in the collection of Leland Stanford Junior University, has the rectrices of one side yellow and shorter than those of the other side, which are red.

These birds nest late in May, and lay usually five, sometimes four or six eggs.

Colaptes auratus luteus. Northern Flicker.

I add this name only on the strength of some of the birds mentioned above. All show traces of *cafer* blood.

Phalænoptilus nuttalli californicus. California Poorwill.

This curious bird may often be seen toward dusk squatted in the dust of the old and less frequented roads of the hill region. Here they may often be followed for a quarter of a mile or more, rising when approached, but alighting again farther on. In August they feed on a gray moth, and when disturbed utter a few quick, short notes very different from their plaintive love call.

Chætura vauxii. Vaux's Swift.

No rule can be given for the coming and going of these birds, whose movements seem to be regulated, if regulated at all, by the abundance of insect food. I have seen them very many times, but find only two dates in my notebooks—Palo Alto, April 27, 1893, and Los Gatos, August 24, 1893. They are usually seen in company with *Tachycineta thalassina*, and I have reason to believe that both breed among the redwoods of Santa Cruz county.

Calypte anna. Anna's Hummingbird.

Anna's hummingbirds are resident throughout the year, though they probably are fewer in winter than at other seasons. One unusually cold winter day I found a male of this species perched on a rafter in a barn and unable to move until warmed in the house, when he flew about seemingly none the worse for his torpor. They sometimes begin to nest in January, and I have found nests con-

taining young birds as late as July 4 (1890). It is probable, therefore, that they raise more than one brood each year. The nests are beautiful structures, often so covered with lichens as to be very well disguised. This is especially apt to be the case when the nests are built in deciduous oaks. Other trees commonly used by these birds for nesting purposes are the live oak, Monterey cypress, pines, bay and eucalyptus. Late in the season they seem to prefer trees growing near or even overhanging running water. I have never seen the males take any part in nest building or in rearing the young. Indeed, they are almost never to be seen near the nests, seeming to prefer to spend their time perched upon an exposed twig in some lonely situation, or in making war upon their fellows. When attacking other birds they usually rise to a considerable height and then drop straight down as if to strike the enemy. When a few inches above the victim, however, they suddenly turn and rise again to the original position, giving vent, at the moment of turning, to a sharp rasping squeak, which has much the same effect on the enemy as the sudden click of a gunlock. In this way they vanquish even the jays.

I once saw two males of this species performing a curious sort of dance. They perched upon dead twigs, perhaps thirty feet apart and about half this distance from the ground, as if about to attack each other. Instead of doing so, however, they continually exchanged places, passing one another without any show of hostility, and meanwhile uttering their peculiar rasping song. This performance was continued during about fifteen minutes.

While feeding from flowers they frequently steady themselves in the air by holding with one or both feet to some twig or leaf. In feeding from certain plants, as the hibiscus, where the tube of the flower is too long to allow of their reaching its base in the ordinary way, these humming birds habitually plunge their bills through the under surface of the corolla near its base. They eat multitudes of small flies, either catching them in the air or, at times, picking them off the bark of trees where they have been attracted by exuding sap.

They are very fond of bathing, and for this purpose usually select a stream so small and shallow that they can stand in the water. Standing thus they dip first one side of the face and then the other in the stream in an indescribably graceful and dainty manner. Having thoroughly soaked themselves they dart to some

leafless twig to dry and carefully arrange their feathers. I have never observed them bathing in the spray of fountains.

Selasphorus rufus. Rufous Hummingbird.

This hummingbird seems to be most abundant in February and March when the wild currants are covered with their pink blossoms. It can then almost always be found where these bushes grow. The shriller whir of its wings enables one to distinguish it readily from Anna's hummingbird which is found in the same situations. It is even more pugnacious than the latter species and its nesting season probably is shorter. I have found its nests only in March and April. It usually builds in cypresses, pines, or eucalypti, and its nests are often very beautiful structures, especially when the highly colored stamens of the eucalyptus blossoms are used in their construction.

Tyrannus verticalis. Western Kingbird.

This beautiful flycatcher is abundant in many localities in the valley, but I never have observed it in the foothills west of Los Gatos.

Myiarchus cinerascens. Ash-throated Flycatcher.

I believe that these birds usually arrive at Los Gatos in April, although I observed one February 26, 1889. They begin to nest late in May (May 16, 1890; May 21, 1889; May 24, 1888), and eggs may sometimes be found after the middle of June (June 18, 1889). The number of eggs laid is ordinarily either four or five. The nests are usually built in cavities in oak trees, but a bird-box which I placed in a tree in a barnyard has been used by these flycatchers for the last ten years (1890–1899).

On May 21, 1889, I found a pair of these birds building in a common tin watering-pot hanging in a vine-covered arbor. The nest had just been begun. The first egg was laid May 25, and others were added on each of the next four days. This nest was made chiefly of hair from cows and rabbits, and was so soft that none of the five eggs could be seen in it even when one looked directly down.

Sayornis saya. Say's Phœbe.

Say's Phœbe appears usually in October or November and is not uncommon through the winter.

Sayornis nigricans. Black Phœbe.

This phœbe is common in all parts of the county and, even in the foothills where snow sometimes lies on the ground a few days in winter, is resident throughout the year. It begins to nest early in April, but fresh eggs may sometimes be found in June.

Contopus richardsonii. Western Wood Pewee.

The Western wood pewee is a common summer resident, arriving usually in April and leaving in September, or even late in August. It begins to nest early in June (June 4, 1892).

Empidonax difficilis. Western Flycatcher.

This flycatcher is a very common summer resident and breeds abundantly from May to July (May 4, 1891, to July 4, 1890). Its nests are built in all sorts of situations. One was made of grasses and green moss in some ferns which hung over the bank of a road. Others are made almost entirely of spider-web and placed on beams in low sheds such as cow-stables and hen-houses. The eggs are usually either three or four. The love-call of the male is fée-iss fée-iss, repeated over and over again.

Otocoris alpestris chrysolæma. Mexican Horned Lark.

I have never seen the horned lark at Los Gatos, though it is not rare only a few miles away in the valley.

Pica nuttalli. Yellow-billed Magpie.

This magpie breeds abundantly in the eastern and southern portions of the county, but I have never seen it in the western foothills.

Cyanocitta stelleri frontalis. Blue-fronted Jay.

At Los Gatos these jays are numerous throughout most of the year, but during the breeding season are almost never seen. Probably a few remain to breed in the deeper cañons, while the majority retire to the redwoods of Santa Cruz county. They are able mimics, and imitate perfectly the calls of the red-tailed hawk, quail and several other birds. One, which I kept in a cage with a number of small birds, killed and ate a golden-crowned sparrow.

Aphelocoma californica. California Jay.

These jays are very common and are very destructive to fruit. Their eggs may be found from the middle of March to the middle

of May (March 17, 1892, to May 16, 1889). Like the blue-fronted species this jay eats a great many bay-nuts, acorns and almonds. These it carries to some suitable situation, such as a fence rail or the limb of a tree, and, holding them with one foot, deftly cracks them with its bill. I have known it to eat the eggs of Anna's hummingbird, the house finch, the green-backed goldfinch and the brown towhee.

Corvus americanus. American Crow.

I have never seen the crow in this county, but Mr. J. M. Hyde tells me that he has found it near Gilroy, where it probably breeds.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird.

This handsome bird breeds in considerable numbers in the marshes south of San José.

Sternella magna neglecta. Western Meadow Lark.

This was formerly a very common resident in all parts of the valley, but of late years the converting of grain fields into orchards has resulted in a great restriction of its territory. As a songster it is with us probably without an equal, unless the black-headed grosbeak or the California thrasher share its honors. The number of its eggs ranges from four to six. I have found fresh eggs from April 3 (1889) to May 31 (1890). Once in the breeding season, I shot one of these larks which had several wasps in its bill.

Icterus bullocki. Bullock's Oriole.

Bullock's oriole is a common summer resident which breeds abundantly in the valley, but rarely if ever in the foothills west of Los Gatos. It arrives about the middle of April (April 18, 1889; April 16, 1892; April 8, 1893) and begins to nest a week or two later (April 20, 1893). It is seen occasionally after the middle of August (August 17, 1892).

Scolecophagus cyanocephalus. Brewer's Blackbird.

In many parts of the valley these noisy birds breed abundantly in April and May. Most of the nests that I have seen were in live-oak or cypress trees, usually close to water. The usual number of eggs is five, though sometimes only four are found. I believe that only one brood is reared each year. Small flocks remain through the winter.

Carpodacus purpureus californicus. California Purple Finch.

This purple finch is at no time common. Individuals or little companies, however, occur all through the year. I regard them as stragglers from the redwoods near the coast, though some may, perhaps, breed in localities where conifers have been planted.

Carpodacus mexicanus frontalis. House Finch.

The linnet or redhead is probably our most abundant bird in spring and summer, but in winter is outnumbered by certain migratory species, such as the robin and the Zonotrichias. It does great damage to fruit, being especially fond of cherries, peaches and figs. It begins to lay about the middle of April, though eggs may sometimes be found a little earlier (April 9, 1888), and lays one egg each day until the set is complete. The number of eggs varies from three to six, but usually is four or five. I have known three broods to be raised in one nest in one year. Nests of the previous year not infrequently are relined and used, as are also those of other species, such as the brown towhee. The labor of nest building falls entirely on the female, but the male accompanies her on all her trips for material and sings almost constantly with great power and fervor. He, however, takes no part in incubation, and little or none in feeding the young, at least while they remain in the nest.

The following notes show, among other things, the period of incubation :

April 14, 1887. Found a nearly completed nest of the house finch.

April 15, 16. Female continued work on nest.

April 17. One egg.

April 18. Two eggs.

April 19. Three eggs.

April 20. Four eggs.

April 21. Five eggs.

May 3. Four young birds and one egg.

May 4. Five young.

July 14, 1899. House finches began a nest in a vine.

July 15. Nest building was continued.

July 16. Female carrying lining materials. Male always accompanies her, but carries nothing.

July 17. One egg. Female sitting at night.

July 18. Two eggs. Female sitting off and on, it being a very warm day.

July 19. Three eggs. Female sitting intermittently.

July 20. Four eggs.

July 21, 22, 23. Four eggs. Three young birds, probably of an earlier brood, roost at night in the vine with the male.

August 1. Noon: Four eggs. Evening: One egg has hatched.

August 2, 8 A.M. Two eggs and two young. Noon: Same. 6 P.M.: One egg and three young.

August 3. Four young.

August 18. Noon: One young bird on edge of nest, three in nest. Later: Four young in nest. 5 P.M.: One young bird in vine a foot from nest. 6 P.M.: Two young in vine, then back in nest. 7 P.M.: Three of the young have flown to neighboring trees; one is still in vine. Later: All are gone.

On May 4, 1893, I found a nest containing four eggs and a female that evidently had died while sitting. All were cold.

In the spring of 1898 I transferred three young linnets from the nest where they had just hatched to the nest of a pair of domestic canaries whose young were of about the same size. The canaries showed no objection to this sudden addition to their family, and reared all successfully. Late in the summer two of the young linnets began to sing in low tones. To my surprise, their song was entirely copied from that of their foster parent, though of only about half its extent. Early in the summer of 1899, these birds were liberated. Their song then consisted of about one-half of the song of the house finch, followed by several trills from the song of the canary and for several months after this they could be distinguished by it. What finally became of them, I do not know. Birds which have been reared in a cage have the usual red of the plumage replaced with yellow. Caged adults also become yellow after moulting.

Astragalinus tristis salicamans. Willow Goldfinch.

I have not seen this bird at Los Gatos in summer, although it occurs there in considerable numbers in winter. It is not rare at Palo Alto at any season.

Astragalinus psaltria. Green-backed Goldfinch.

This beautiful goldfinch breeds very abundantly in all parts of

the valley which I have visited. That it is also very abundant in winter and early spring may be seen from the following item from my notebook:

"March 21, 1888. Counted seventy-two goldfinches in a large white oak. Probably there were a hundred and fifty in all, mostly *S. psaltria*, and the males were in full song, forming a charming chorus for all their lack of leadership."

Nest building begins early in April (March 30, 1889), and fresh eggs may be found as late as the 1st of August (July 31, 1888). The number of eggs laid varies from three to five, but usually is four. Rarely, sets of pure white eggs are found. I found one set of four eggs, of the usual bluish tint, of which one was finely dotted with reddish brown. The nests are built in all sorts of trees and bushes (blackberry, raspberry, grape, maple, orange, apple, peach, oak, fig, bay, greasewood, bamboo, etc.), at heights varying from two to thirty feet.

Astragalinus lawrencei. Lawrence's Goldfinch.

This species is not nearly so common as the green-backed goldfinch, but is by no means rare. It nests in May and June and usually lays five eggs.

Spinus pinus. Pine Siskin.

The siskin usually is a very common bird in winter, though sometimes few are seen. I have not observed it in summer, but Mr. James M. Hyde tells me that a pair nested in Santa Clara several years ago.

Ammodramus sandwichensis bryanti. Bryant's Marsh Sparrow.

I never have noted this bird at Los Gatos, though it is common at Palo Alto, especially in winter.

Chondestes grammacus strigatus. Western Lark Sparrow.

The lark sparrow breeds commonly, throughout the county, in April, May and June. I saw one carrying nesting materials March 22, 1889. The nests are built either on the ground or in trees or bushes. The species does not occur at Los Gatos in winter (arriving in March), but probably is to some extent resident in the lower parts of the valley.

Zonotrichia leucophrys intermedia. Intermediate Sparrow.

This form occurs in some numbers in winter, but is never so

abundant as Gambel's sparrow. I believe that a few individuals of the true *leucophrys* occur, but of this I am not positive.

Zonotrichia leucophrys gambeli. Gambel's Sparrow.

Gambel's sparrow usually appears at Los Gatos in September (September 22, 1891) and remains until the end of March (April 1, 1890). It is more abundant at Palo Alto and San José than at Los Gatos.

Zonotrichia coronata. Golden-crowned Sparrow.

Probably the most abundant winter bird at Los Gatos is this handsome sparrow. It usually arrives in September (October 1, 1887; September 22, 1888; September 16, 1889; September 23, 1891; August 31, 1892), and leaves in April (April 3, 1889; April 11, 1892; April 20, 1893). It is common at Palo Alto, but probably less so than the white-crowned varieties.

Spizella socialis arizonæ. Western Chipping Sparrow.

The chipping sparrow is a fairly common resident, breeding usually in May. I saw none in 1892.

Junco hyemalis oregonus. Oregon Junco.

Junco hyemalis thurberi. Thurber's Junco.

Junco hyemalis pinosus. Point Pinos Junco.

A few juncos nest in the chaparral belt near Alma. They appear indistinguishable from the juncos which breed throughout the redwood region of Santa Cruz county, and which I have no hesitation in calling *J. h. pinosus*. This same pale-headed, pink-sided variety occurs during the winter. At this season one finds also dark-headed, pink-sided birds, which I call *J. h. oregonus*, and dark-headed birds, with comparatively little pink, which I refer to *J. h. thurberi*. The juncos usually arrive at Los Gatos in October (October 21, 1887; September 16, 1889), and a few remain until late in April. The October and April birds seem to be mostly *J. h. pinosus*.

Amphispiza belli. Bell's Sparrow.

This bird appears to be of very local distribution in Santa Clara county. I have found it only on a small tract near the summit of the mountains west of Los Gatos. Here a considerable colony

breeds every year, but their nests are so well hidden that I have found only one. This was built in a small bush and held three slightly incubated eggs, May 9, 1898. The old birds were feeding their young a kind of yellow spider, June 23, 1892.

Melospiza fasciata samuelis. Samuel's Song Sparrow.

Samuel's song sparrow is a very common resident. It nests in bushes, usually within a foot or two of the ground, though sometimes at a height of more than ten feet. Its three or four eggs may be found from the first week in April (April 4, 1889) to the last of June (June 29, 1889). Very frequently one of the eggs fails to hatch. Discarded snake skins are sometimes used in constructing their nests. This song sparrow daringly enters all sorts of holes and dark corners about woodpiles and under boxes, where no other bird except a wren would think of going.

Melospiza lincolni. Lincoln's Sparrow.

My experience would lead me to believe that Lincoln's sparrow is a rather rare winter visitant, though it may, perhaps, prove to be fairly common in the low-lying portions of the valley. One was shot February 21, 1891.

Passerella iliaca unalaschcensis. Townsend's Sparrow.

This is a common winter resident in the foothills. It usually arrives in October and stays late in March.

Pipilo maculatus oregonus. Oregon Towhee.

To this name I refer the common "black-headed" towhee resident in the foothills west of Los Gatos. It is not typical *oregonus*, but approaches that form far more closely than it does *P. m. megalonyx*. Probably in winter some nearly typical *P. m. oregonus* can be found. What the bird of the eastern side of the valley is I do not know, but I shall not be surprised if it prove much closer *P. m. megalonyx*.

This bird almost invariably builds on the ground, though in a few instances I have found its nest in bushes. Its eggs are usually four, sometimes three, in number, and may be found from late in April (April 24, 1889) until the middle of July (July 11, 1888). April 30, 1888, I found a nest of this bird containing four eggs of the towhee and one of the California quail. Wishing to learn whether the towhee objected to bringing up other people's children, I took

her four eggs, leaving only the quail's egg in the nest. The next day the towhee was still sitting, though it cannot be supposed that she was unable to detect the great difference in size, color and shape between this egg and her own. The next year (May 17, 1889) I found a nest of this species containing the usual four towhee's eggs and two quail's eggs, in addition to which there was a third quail's egg on the ground about six inches from the nest. The towhee was sitting.

Pipilo fuscus crissalis. California Towhee.

This is a very common resident. The birds apparently remain paired through the year. Nesting begins about the middle of April (April 16, 1889), and young birds may sometimes be found still in the nest in September (September 3, 1899). The number of eggs usually is three or four, and one is laid each day until the set is complete. The period of incubation is fourteen days.

Oreospiza chlorura. Green-tailed Towhee.

One was shot in a river bottom near San José during the winter of 1889 or 1890.

Zamelodia melanocephala. Black-headed Grosbeak.

This grosbeak must be ranked among the very finest of our songsters. The song begins with a series of loud, clear notes, delivered, at considerable intervals, in a more or less declamatory style. These are followed at length by runs and trills fully as tender and liquid as the notes of a thrush, and quite as well executed as those of a well-trained canary. This song is repeated over and over again, almost without a pause. One that I timed sang nearly twelve minutes, with never a pause of more than ten seconds. This grosbeak arrives about the middle of April (April 16, 1890; April 15, 1892), and comparatively few remain until September. Nest building usually begins early in May, but the last of the young sometimes remain in the nest until the middle of July (July 12, 1888). The males assist in the duties of incubation.

Cyanospiza amœna. Lazuli Bunting.

This species arrives about the middle of April—the males always, I believe, coming a day or two before the females—and begins to build about the end of that month. I have found fresh eggs from May 1 to June 23 (1888). Occasionally the eggs are dotted with

brown. The number laid is ordinarily either three or four. A caged male often sang until nine or ten o'clock at night during the breeding season, though in the dark.

Piranga ludoviciana. Louisiana Tanager.

This beautiful bird occurs only as a migrant—during April and May and again in August and September. At these times it is fairly common. Last seen in spring, May 29 and 30, 1898.

Progne subis hesperia. Western Martin.

The martin breeds in some numbers on the Mount Hamilton range. I have not noted it on the west side of the county.

Petrochelidon lunifrons. Cliff Swallow.

This is a very common summer resident, appearing at Palo Alto about the middle of March (March 14, 1892), though it usually does not reach Los Gatos much before April. It breeds in June.

Hirundo erythrogaster. Barn Swallow.

For some years a colony nested at Alma.

Tachycineta bicolor. Tree Swallow.

Along the western side of the county this swallow breeds quite abundantly in holes in white oaks.

Tachycineta thalassina. Violet-green Swallow.

This gorgeous bird is an irregular summer visitant, probably from the redwood region nearer the coast. I have no knowledge of its breeding in Santa Clara county.

Stelgidopteryx serripennis. Rough-winged Swallow.

A number of these birds breed near San José.

Ampelis cedrorum. Cedar Waxwing.

This waxwing is an occasional winter visitant. I have seen none for several years.

Lanius ludovicianus gambeli. California Shrike.

This is a common resident of the valley. I have not found it breeding in the foothills west of Los Gatos, though it is frequently seen there after the nesting season is over. On September 3, 1892, I observed one perched in the top of a cherry tree, singing very sweetly and with much power.

Vireo gilvus. Warbling Vireo.

It is usually early in April that this vireo arrives at Los Gatos. By the middle of that month it becomes common, and a little later nest building begins (April 18, 1890; April 27, 1889). Its eggs are usually four, sometimes only three, and may be found throughout May and the greater part of June (April 26, 1890; June 20, 1889).

Vireo huttoni. Hutton's Vireo.

This is a fairly common winter resident near Los Gatos. I believe it retires to the coast to breed.

Helminthophila celata lutescens. Lutescent Warbler.

It usually is not until about the 1st of April that this warbler becomes common, although individuals arrive a week or two earlier. In this vicinity their nests seem always to be built upon the ground, and those of several years often are not more than a few inches apart. Nestlings may be found from the last week in April until the end of June (April 25–June 30, 1889). Four or five eggs are laid.

Dendroica æstiva. Yellow Warbler.

This is a common summer resident and breeds abundantly, especially on the floor of the valley, in June.

Dendroica auduboni. Audubon's Warbler.

This warbler occurs in large numbers, from October on through the winter. It is most frequently seen in companies, often with the western bluebird and the various goldfinches, and feeds, to some extent, on grapes.

Dendroica townsendi. Townsend's Warbler.

A few specimens of this warbler have been taken at Santa Clara by Mr. J. M. Hyde. I regard them as stragglers from the redwood region near the coast, where this bird is common during migrations.

Geothlypis tolmiei. Tolmie's Warbler.

I have only one record of this warbler. On May 17, 1890, I came upon a fine male in the foothills west of Los Gatos. Seven days later, in the same place, I saw both male and female carrying food. Doubtless they had a nest, but careful search failed to reveal it.

Geothlypis trichas occidentalis. Western Yellow-throat.

A number of these birds breed in the marshes south of San José.

Icteria virens longicauda. Long-tailed Chat.

This beautiful bird is not uncommon along the watercourses, but is so shy that it is rarely seen. It nests in May and June.

Anthus pensilvanicus. American Pipit.

This larklike bird is a very abundant winter resident, arriving usually in October.

Cinclus mexicanus. American Dipper.

One not infrequently meets this bird when wandering along streams in the rougher parts of the county, though it does not breed here in nearly such numbers as among the redwoods of Santa Cruz county.

Minus polyglottos. Mockingbird.

On February 17, 1893, I shot a male mockingbird that had been living for some weeks in a small grove of peppers and cypresses near Stanford University. This is the only one I have seen. It bore no evidence of having been caged.

Harporhynchus redivivus. California Thrasher.

This common resident begins nest building usually in the first week in April. Its eggs—which sometimes are without markings—vary from two to four in number and may be found from the middle of April until the middle of May. The song is clear and powerful, and so frequently includes snatches from the songs and calls of other birds (among which are the flicker, housefinch, quail, goldfinch, black-headed grosbeak, etc.) that this species is often spoken of as the mountain mockingbird.

Thryomanes bewickii spilurus. Vigor's Wren.

Vigor's wren is a resident species, very common in winter and moderately common in summer. I have found fresh eggs as late as June 18 (1890).

Troglodytes aëdon parkmanii. Parkman's Wren.

The earliest of these wrens usually arrive at Los Gatos about the middle of March. By the end of that month they are common

and in full song (during 1896 and 1897 I saw none). Nest building begins during the second half of April. I have found its five to eight eggs from May 9 to June 6 (1890).

Cistothorus palustris paludicola. Tule Wren.

The tule wren breeds in the marshes south of San José, but not very abundantly.

Parus inornatus. Plain Tit.

It can hardly be said that this tit is common at Los Gatos even in winter, though it is seen much more frequently then than during the breeding season. At Palo Alto, and probably in the oak region throughout the valley, it is a very common resident. It has, perhaps, a greater variety of notes than any other of our birds. Its eggs, usually, are seven, and are to be found in April. Occasionally, the nests are built in bird boxes.

Parus rufescens neglectus. California Chickadee.

In the coniferous woods southeast of Saratoga this chickadee is a very common resident and undoubtedly breeds. Straggling flocks occur irregularly near Los Gatos during nearly the whole year, but never are common.

Chamæa fasciata. Wren Tit.

This is a very common resident of the chaparral belt, where its curiously rattlelike call may be heard almost constantly. Its song is a series of beautifully clear whistled notes delivered at constantly lessening intervals, so that it has much the cadence of an ivory ball dropped on a slab of stone. Nest building begins about the middle of April (April 12, 1890) and fresh eggs may be found until late in June (June 20, 1889). Three to five eggs are laid, most frequently four.

Psaltriparus minimus californicus. California Bush Tit.

This is a very common resident. Nest building sometimes begins as early as the middle of February, but usually not until a month later. The nests vary in length from six and one-half inches to more than a foot. Their construction occupies the birds from one to three weeks (extremes are April 5–11; March 16–April 10), depending chiefly upon the abundance of material. Full sets contain from two to eight eggs, and may be found as late as June 16

(1888). When the eggs are taken the birds often remove the nest, bit by bit, to a new location. The following notes show that two broods are reared in the same nest:

April 24, 1888: Found bush tit's nest in live oak, ten feet from ground. May 4: After cutting the nest down and finding that it held five young birds, I tied it in place again. May 12: Young still in nest. June 16: Thinking the nest deserted I again cut it down, was surprised to find five eggs. The birds had stopped up the original hole, made another lower down, and relined the nest.

April 5, 1889. Bush tit's nest in live oak, nine feet from ground. Six young. April 21: Nest empty. April 27: Six eggs. April 28: Seven eggs. April 30: Eight eggs.

Regulus satrapa olivaceus. Western Golden-crowned Kinglet.

This kinglet is a rare winter visitant.

Regulus calendula. Ruby-crowned Kinglet.

This is a very common winter resident, arriving, ordinarily, in October and remaining until March or April.

Myadestes townsendii. Townsend's Solitaire.

A female shot at Los Gatos, February 11, 1893, is the only one observed.

Hylocichla ustulata œdica.

This is a very common summer resident, arriving in April and remaining until September (Mar. 24, 1899–Sep. 3, 1892). It nests very abundantly along watercourses, chiefly in June.

Hylocichla aonalaschkæ. Dwarf Hermit Thrush.

The dwarf thrush is extremely common from late in October (Nov. 7, 1888, Oct. 20, 1899, Oct. 30, 1891, Oct. 22, 1892) until after the thrushes of the *ustulata* type have appeared in the spring. I believe it does not nest in Santa Clara county, although it does among the redwoods a few miles farther west.

Merula migratoria propinqua. Western Robin.

The robin is a common migrant and winter resident, appearing usually in October (Oct. 16, 1887, Nov. 3, 1888, Oct. 9, 1889, Oct. 30, 1891) and remaining until the latter part of March (Mar. 21, 1888; Mar. 24, 1889). One appeared at Los Gatos August 8,

1893, and was seen almost daily until September 10. In November and December, 1889, immense flocks passed southward, almost without intermission for days at a time.

Hesperocichla nævia. Varied Thrush.

It usually is not until several weeks after the arrival of our other winter birds that the varied thrush appears at Los Gatos (Jan. 5, 1889; Dec. 24, 1889; Dec. 9, 1893). Often it is very common, but during the winter of 1889–90 I saw only three. My latest dates are March 22, 1888, and March 30, 1890.

Sialia mexicana occidentalis. Western Bluebird.

This bluebird is a common resident. Its nests may be found from the middle of April until June. In winter it associates with Lawrence's warbler and the pine, green-backed and willow goldfinches.

Sialia arctica. Mountain Bluebird.

The mountain bluebird sometimes occurs as a rare winter visitant.